How to Read a Fluid-Filled Biosafe Liquid Thermometer

How It Works

Fluid-filled biosafe liquid (bottle) thermometers consist of two parts. The first part is a glass sensing bulb connected to a glass tube with a numbered scale printed along the tube. Inside the tube is a liquid (usually mercury or colored alcohol) that rises and falls as the temperature changes in the immediate area of the sensing bulb. The second part is a bottle containing a biosafe liquid, such as glycol. The glass sensing bulb is immersed in the liquid. The liquid provides a buffer around the sensing bulb so that the reading does not fluctuate when the refrigerator or freezer door is opened or closed.

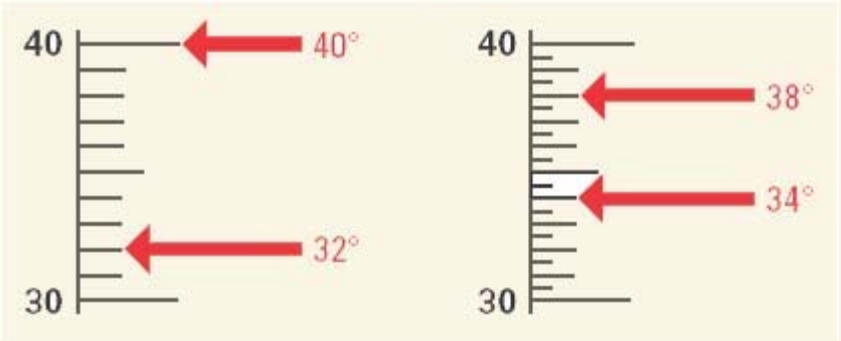
A fluid-filled biosafe liquid thermometer.

How to Read It

1. Examine the scale that is marked on the side. Determine if it is in Fahrenheit or Celsius or both.
2. When reading the temperature, the thermometer should be vertical and your eyes should be level with the top of the liquid in the glass tube. It is preferred that the thermometer is read while still inside the vaccine storage unit. However, if this is not possible, the thermometer may be removed from the unit, read at eye level, and quickly replaced.

Reading a fluid-filled biosafe liquid thermometer.

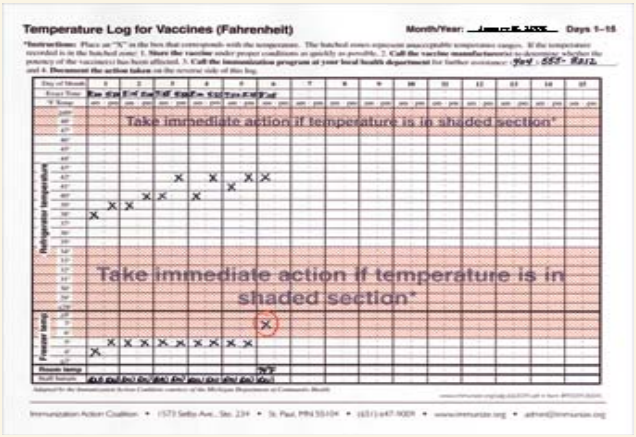
3. The position of the top of the liquid along the scale indicates the temperature. Read the thermometer to the appropriate number of significant digits. Shown below are temperatures indicated on one-degree and half-degree Fahrenheit scales.



One-degree scale (sample readings)

Half-degree scale (sample readings)

4. Record the current temperature on the temperature log. Note any out-of-range temperatures and the action taken on the back of the log.



Front: Temperature Log for Vaccines.

Note: ⚠ Immediate action must be taken to correct improper vaccine storage conditions.

Reverse: Vaccine Storage Troubleshooting Record.